CASE REPORT

Peri-implant galactoceles following vacuum-assisted core biopsy of the breast: a cautionary tale

Donna Taylor,^{1,2} Sagarika Thushanthi Kulawansa,³ Dugald Dalziel McCallum,⁴ Christobel Saunders²

¹Department of Radiology, Royal Perth Hospital, Perth, Western Australia, Australia

²School of Surgery, University of Western Australia, Nedlands, Western Australia, Australia

³Department of Radiology, Gampola Base Hospital, Gampola, Sri Lanka

⁴Department of PathWest, Royal Perth Hospital, Perth, Western Australia, Australia

Correspondence to

Dr Donna Taylor,
Donna.Taylor@health.wa.gov.au

SUMMARY

A lactating woman in her early 40s with a strong family history of breast cancer presented with a markedly swollen breast days after having a vacuum-assisted core biopsy performed to sample indeterminate microcalcifications in her left breast. Ultrasound showed a large peri-implant fluid collection which yielded milky fluid on aspiration consistent with galactoceles formation. Histology of the core specimens revealed a fragment of fibrous capsule suggesting that the core biopsy had created a fistula between the breast tissue and the peri-implant space. Bromocriptine was given and the galactoceles slowly resolved.

BACKGROUND

Vacuum-assisted core biopsy of the breast is a safe, effective and widely used technique providing large tissue samples, particularly useful for reducing histological underestimation of the severity of calcified lesions.¹ While the complication rate is very low, in certain circumstances there are added risks and possible complications that warrant consideration and discussion with the patient prior to obtaining informed consent. The purpose of this report is to remind radiologists of the rare potential

complications of milk fistula and galactocoele that may follow core biopsy of the breast in lactating women. It also highlights the potential risk of damage to breast implants when large core vacuum (9G) assisted biopsy devices are used.

CASE PRESENTATION

A 39-year-old woman with bilateral silicone breast implants and a strong family history of breast and ovarian cancer was referred to discuss prophylactic mastectomy. She was 8 months postpartum and breast feeding.

Surveillance mammography (figure 1) revealed widespread indeterminate microcalcifications in the left breast, mainly in the lower outer quadrant.

In view of the patient's high risk for breast cancer and the distribution and calcific nature of the lesion it was decided to perform vacuum-assisted stereotactic core biopsy.

With the implant displaced out of the field of view (figure 2), six 9G stereotactic vacuum-assisted core biopsies were obtained. Calcifications were present on the specimen radiograph and histology was benign with secretory calcifications noted within benign lactational change.

There were no immediate complications and the patient was discharged.

Over the next few days, the patient noted gradual swelling of her breast without symptoms to suggest infection.

INVESTIGATIONS

Breast ultrasound showed a large peri-implant collection containing mobile low-level internal echoes

Figure 1 Magnification view left breast CC projection. Note widespread indeterminate microcalcifications (arrow). The silicone breast prosthesis is also visible (*).

Figure 2 Stereotactic image taken during the procedure. Note the implant is not visible within the biopsy window.

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Figure 3 Ultrasound image showing large peri-implant collection.

with some clumping (figure 3). No focal intraparenchymal breast masses, oedema of breast tissue or skin or left axillary lymphadenopathy was seen.

Ultrasound-guided fine-needle aspiration of the collection yielded 50 ml of creamy liquid consistent with milk (figure 4). On cytology, inflammatory cells and foamy histiocytes were seen with no evidence of malignancy. No organisms were seen or cultured.

The histology slides from the initial core biopsy were again reviewed and a 5 mm fragment of peri-prosthetic fibrous capsule, with typical pseudo-synovial morphology was found (figure 5).

DIFFERENTIAL DIAGNOSIS

The initial differential diagnosis included a postprocedural breast abscess; however, the patient was not systemically unwell nor was there any oedema or erythema of the breast to support this.

Figure 4 Aspirate from peri-implant collection.

Figure 5 Vacuum-assisted breast core biopsy—H&E (×40 magnification).

TREATMENT

The patient was given prophylactic antibiotics and advised to discontinue breast feeding. She was reviewed a week later and a further 500 ml of milk aspirated from the peri-implant collection. As the patient had already decided to wean her child, bromocriptine was given to suppress lactation.

OUTCOME AND FOLLOW-UP

The left breast swelling subsided over the next 6 weeks, with cessation of lactation.

DISCUSSION

This case demonstrates two rarely reported complications that can occur following large gauge vacuum-assisted core biopsy in a lactating breast and in the presence of a breast implant, viz the development of a 'pseudo-galactocele' and disruption of the implant capsule. Galactocele and milk fistula formation are two rarely reported complications of breast biopsy in lactating women, usually following open surgical biopsy, with only two case reports following 14G core biopsy.^{2 3} The relative risks of core biopsy in a lactating breast using 9G needles compared with 14G needles are unknown; however, it seems reasonable to postulate that the risk of significant duct disruption and fistula formation is likely to be higher using larger gauge needles and with the use of vacuum assistance.

We postulate that in our patient, the large core vacuum-assisted biopsy procedure created a fistula between the biopsy cavity and the potential space between the implant shell and the fibrous capsule with formation of a peri-implant 'pseudo-galactocele'.

Stereotactic breast biopsy is said to be safe in the presence of breast implants. Jackman *et al*⁴ reported no significant complications (including implant damage) in series of 18 patients who underwent stereotactic vacuum-assisted core biopsy. While the anterior aspect of our patient's implant was not visible within the field of view during the procedure, it is possible that the strong suction effect associated with vacuum biopsy technique pulled part of the fibrous capsule into the sampling chamber of the needle, causing a defect. The importance of keeping the sample notch directed away from the implant during tissue acquisition was raised by Jackman *et al*.⁴

Breast cancer is uncommon in pregnant and lactating women; however, delay in diagnosis is thought likely to be one of the most important factors associated with more advanced stage at

diagnosis and the relatively poor prognosis in this group.⁵ Work-up of breast findings should not be delayed. Any palpable abnormality not shown to represent a simple cyst on ultrasound, or any screen detected mammographic abnormality not shown to be clearly benign after assessment should have percutaneous biopsy to exclude malignancy.⁶

In 1998, Sumkin *et al*⁷ recommended fine-needle aspiration biopsy for tissue sampling of suspicious lesions in lactating women because of the risk of milk fistula formation, reserving core biopsy for use where fine-needle biopsy is non-diagnostic. While fine-needle aspiration may give diagnostic results,⁸ the cytological features of normal breast epithelial cells in pregnancy and lactation may mimic those of malignancy.^{9–10} It is therefore important that the pathologist is made aware of the patient's condition in order to limit the possibility of a false-positive malignant diagnosis.

An increasing number of women are delaying childbearing until they are older and in the mammographic screening age group. Calcifications requiring biopsy are likely to be increasingly seen and core biopsy is the optimal technique to sample these.¹¹ The relative risks of underestimation of disease using 14G biopsy¹² requiring further surgery needs to be balanced with a possible increased risk of complications associated with use of larger (9–11G) gauge needles and vacuum-assisted techniques in lactating women.

This report serves to remind radiologists of the rare potential complication of milk fistula and galactocele following breast core biopsy in lactating women. It also highlights the potential risk of damage to breast implants with the use of vacuum-assisted large core biopsy (9G).

If a non-calcified breast lesion requires sampling, fine-needle aspiration is suggested initially (the pathologist should be informed of the patient's lactational status). If this is non-diagnostic or if the lesion is calcified, 14G core biopsy is recommended. We suggest that the use of larger gauge vacuum-assisted core biopsy be reserved for when there are indeterminate, discordant or suspicious pathological findings. In women with breast implants, caution to ensure the sampling notch is directed away from the implant is advised.

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Competing interests None.

Patient consent Obtained.

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Learning points

- ▶ An increasing number of women are delaying childbearing until they are older and in the mammographic screening age group. Breast cancer is uncommon in pregnant and lactating women; however, delay in diagnosis is thought likely to be one of the most important factors associated with more advanced stage at diagnosis and the relatively poor prognosis in this group.
- ▶ Work-up of indeterminate breast findings should not be delayed because of pregnancy and lactation.
- ▶ Calcifications requiring biopsy are likely to be increasingly seen. Vacuum-assisted large core biopsy is the optimal technique to reduce the histological underestimation of disease; however, there is a risk of milk fistula and galactocele formation in lactating women.
- ▶ The relative risk of underestimation of disease using a 14G biopsy needle needs to be balanced with possible increased risk of complications associated with use of larger (9–11G) gauge needles and vacuum-assisted techniques in lactating women.
- ▶ The sample notch of the vacuum-assisted core biopsy device should be kept turned away from the implant surface to avoid the possibility of disrupting the implant capsule or damaging the implant.

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